

STUDIES IN NEOTROPICAL RUBIACEAE. I. RUSTIA.

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The herbarium of Field Museum contains one of the finest collections of New World Rubiaceae to be found anywhere. This unusual collection is primarily due to the efforts of Paul Standley, curator of botany for many years at this institution. Here are found many of the holotypes of Standley's new species of Rubiaceae, and material of most of the collections cited in his treatment of the family for Colombia, Venezuela, Ecuador, Bolivia, and Peru. There are also many collections of undescribed taxa, including some with unpublished manuscript names in Standley's distinctive hand. Several have been published in recent years by Steyermark, especially those from Venezuela and adjacent regions.

Among the plant collections of the last two decades from Peru are several belonging to the genus Rustia Karsten, previously unknown for that country. They seem to be conspecific with some Ecuadorean specimens bearing one of Standley's unpublished names. This taxon is described below, and I have added some notes on the other collections of Rustia species from Colombia, Ecuador, and Peru, represented in the herbarium of Field Museum.

RUSTIA RUBRA Standley ex D. Simpson, sp. nov.

Frutex vel arbor parva, 4-8 m. alta; ramulis glabris. Folia magna; stipulis glabris, integris, triangularibus, 1.5-2.5 cm. longis, ad basim ca. 6-8 mm. latis, caducis; petiolo (1.5) 2.5-6 cm. longo; lamina chartacea, supra glabra, subtus plerumque glabra vel rariter minute puberula, oblanceolata vel obovata, ad basim obtusa, apice acuto vel late acuminato, 22-38 cm. longa, 8.5-16 cm. lata, 14-17 (19) paribus nervorum. Inflorescentia terminalis, paniculata, glabra, pyramidalis, 30-45 cm. longa, 25-35 cm. lata; pedicellis quoque per bracteam unam et bracteolam duas subtentis; bracteis deltoideis, ca. 1-1.5 mm. longis, ca. 2 mm. latis ad basim, persistentibus; bracteoleis bracteis non nisi ab amplitudine minore differentibus; pedicellis 5-7 mm. longis. Flos maturus plerumque 15-22 mm. longus, extus glabrus; hypanthio plerumque 5-6 mm. longo; calyce 1 mm. longo, truncato vel obscure dentato; corolla (9) 12-18 mm. longa, tubo ca. 1/3 supra basim constricto, filamentis ca. 1/4 supra basim affixis, e basibus filamentorum et tubo corollae ad insertionem filamentorum versus apicem 3 mm. dense sericeo; filamentis ca. 6 mm. longis; antheris 9 mm. longis. Capsulae maturitae a pedicellis usque 1.7 cm. longis portatae, clavatae vel obovatae, ad apicem leviter truncatae, ad basim acutae vel obtusae, 8-22 mm. longae, 6-9 (12) mm. latae, bivalvatae, septocidales; semenibus numerosis, complanatis, ca. 2 mm. longis et 0.5 mm. latis.

Small tree or shrub, 4-8 m. tall. Branchlets glabrous, terete or somewhat flattened at the nodes. Stipules glabrous, entire, elongate triangular, ca. 6-8 mm. wide at base, 1.5-2.5 cm. long, caducous; petiole (1.5) 2.5-6 cm. long; blade chartaceous, glabrous above, usually glabrous below or rarely minutely puberulous, oblanceolate or obovate, base obtuse, apex acute to broadly acuminate, 22-38 cm. long, 8.5-16 cm. wide, 14-17 (19) pairs of

lateral veins. Inflorescence terminal, paniculate, glabrous, pyramidal, 30-45 cm. long, 25-35 cm. broad; pedicels subtended each by one bract and 2-3 bracteoles; bracts deltoid, ca. 1-1.5 mm. long, ca. 2 mm. wide at base, persistent, bracteoles differing from the bracts only in being smaller; pedicels 5-7 mm. long. Mature flower mostly 15-22 mm. long, glabrous outside; hypanthium mostly 5-6 mm. long; free calyx 1 mm. long, truncate or obscurely toothed; corolla (9) 12-18 mm. long, tube constricted about 1/3 above the base, filaments attached ca. 1/4 above base, tube within and filaments densely sericeous from point of attachment upward for ca. 3 mm.; filaments ca. 6 mm. long, anthers 9 mm. long. Fruiting pedicels to 1.7 cm. long; capsule clavate to obovate, apically somewhat truncate, basally acute or obtuse, 8-22 mm. long, 6-9 (12) mm. wide, bivalved, septicidal; seeds many, flattened, ca. 2 mm. long by 0.5 mm. wide.

Type: W. C. Steere 8021 (holotype F, herb. sheets No. 1,142,100 and 1,142,101).

ECUADOR: Prov. Napo-Pastaza: Las Esperanzas, Río Chingual near junction with Río Las Ollas, alt. 5,000 ft., W. C. Steere 8021; zone of Sofía, valley of Río Chingual, alt. 5,600 ft., W. C. Steere 8339; at cliff edge, Hacienda La Gloria above El Topo, alt. 5,700 ft., W. C. Steere and W. H. Camp 8228; Quijos River Region below Baeza, ridge southwest of confluence of the Río Salado with the Río Quijos, elev. 5,800 ft., Marion Ownbey 2682.

PERU: Dept. Huanuco: Prov. Leoncio Prado; west of Tingo María, alt. 685 m., UCBP\* (José Schunke V.) 6162; Villa Isabel, Río Cuchara, UCBP\* (José Schunke V.) 5683. "Sacha cascarilla", fide Schunke.

According to the specimen labels, the inflorescence, hypanthium, and corolla tube are deep red, and the corolla limb is green or yellow-green. The immature capsule is semifleshy and deep red "but later drying and dehiscent." The Peruvian collections give "Flowers moderate purplish pink" (Schunke 6162) and "flowers yellow-green, calyx strong red, small racemes to 60 cm." (Schunke 5683).

Of the Ecuadorean collections cited above, the specimens in the herbarium of Field Museum all bear Standley's manuscript name Rustia rubra Standl., with the exception of Steere 8339 which was designated "Rustia brachycarpa Standl. sp. nov." Despite the different manuscript name, there is no doubt it is conspecific with R. rubra.

Rustia rubra is closely related to R. splendens (Karst.) Standl. and R. secundiflora K. Schum. R. secundiflora is readily distinguished by the long, narrow corolla lobes (5-11 mm. long by 1.5-2.5 mm. wide) and the long petioles (mostly exceeding 3 cm.). Both R. rubra and R. splendens have

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\* UCBP -- Collections for a project of the Departments of Botany and Pharmacology, University of California at Los Angeles. For an explanation of this abbreviation see Simpson, D. R., A Partial Revision of Paullinia. I. Fieldiana: Botany 36 (12): in press (see III, 3: citation of Herb. Specimens).

short, deltoid corolla lobes that are about as long as wide. R. splendens has typically short petioles (mostly 1-2 cm. long) while in R. rubra they generally exceed 2.5 cm. and the corolla tube of the former is usually longitudinally striate, longer, and with larger diameter than the smaller, nonstriate tube of the latter. The most obvious character separating these two species is the markedly obtuse leaf bases of R. rubra which contrasts with the broadly acute base of R. splendens.

#### The Rustia species of Peru.

In the Flora of Peru the genus Rustia is not included since no collections of this genus were known from Peru at the time that Standley wrote the treatment of the Rubiaceae. Subsequently several collections have been made which can tentatively be assigned to the following species.

Rustia secundiflora K. Schum. Fl. Brasil. 6 (6): 261. 1889.

Dept. San Martín: Prov. Lamas; north of San Antonio 2-4 km., along Río Cumbasa in dense jungle, alt. ca. 1,200 ft., C. M. Belshaw 3514 (distributed as Condaminea corymbosa); Prov. Mariscal Cáceres; Dist. Tocache Nuevo; a orilla de la quebrada en bosque alto, camino al caserío de Santa Rosa de Mishollo, 4 km. de Puerto Pizana, José Schunke V. 4877 (distributed as Rustia splendens); a orilla de la quebrada, en bosque alto con abundante luz solar, al noroeste del vivero del Instituto Agropecuario de Tocache, J. Schunke V. 3952 (distributed as R. splendens); Dist. Uchiza; en bosque alto y terreno pantanoso, la carretera al Río Uchiza, 2 km. del caserío de Nuevo Progreso, alt. 500 m., J. Schunke V. 2305 (distributed as R. splendens).

In two of the flowering collections (Belshaw 3514 and Schunke 3205), the collectors note that the corolla is yellow green, while for Schunke 4877, he wrote, "flores rosa amarillente." The remaining collection (Schunke 3952) lacks flowers but has mature capsules.

Rustia rubra Standl. ex D. Simpson, see above.

Rustia isernii Standl., see below under excluded species.

#### The Rustia species of Ecuador.

There was no mention of Rustia in Standley's Rubiaceae of Ecuador, for the same reason as mentioned above for the Flora of Peru. At least two species are now represented in the herbarium and are listed here.

Rustia rubra Standl. ex D. Simpson, see above.

Rustia sp. A plant not readily assignable to any of the known species is represented by Marion Ownbey 2735, containing both flowers and mature capsules. The corolla has the long, narrow lobes of R. secundiflora but the petioles are very short. The leaves are more narrow than any of the three species discussed

above, and are gradually narrowed to the acute base and the long, acuminate apex. Ownbey 2735 is from Prov. Napo-Pastaza; Arichidona-Tena region, "shrub along creek between Río Lupi-yacu and Río Pano near foot of Cordillera de Guacamayos, west of Tena, elev. 2,500 ft.". It was distributed as Rustia splendens (Karst.) Standl.

The Rustia species of Colombia.

Rustia occidentalis (Benth.) Hemsl. Biol. Centr. Amer. Bot. 2: 14. 1881. Standl. Fieldiana Bot. 7(1): 26. 1930. ibid. l.c. 8(5): 340. 1931.

Dept. El Choco: Strand flora between Camp Curiche and Q. Changame, J. A. Duke 11580 (hb. AMES); Río San Juan, alt. 80 m., Triana 1784, 3262-3. Dept. del Valle: Rivers Yurumangui and Naya, Lehmann 9019; Río Yurumangui, alt. 5-50 m., Cuatrecasas 15905; Río Naya abajo de Puerto Merizalde, alt. 1-4 m., Cuatrecasas 14317; Río Cajambre, alt. 5-80 m., Cuatrecasas 17580; Bahía de Buenaventura, Quebrada de Aguadulce, 0-10 m. alt., Cuatrecasas 19736; Buenaventura, Killip 11707; north shore of Buenaventura Bay, Killip and Garcia 33338; Buenaventura Bay, mangrove swamp, Killip 34986; south shore of Buenaventura Bay, mangrove swamp, Killip and Cuatrecasas 38680. Dept. Nariño: east side of Gorgona Island, Killip and Garcia 32209; south end of Gorgona Island, near sea level, Killip and Garcia 33128.

Rustia splendens (Karst.) Standl. Fieldiana: Botany 7(1): 26. 1930. ibid. l.c. 8(5): 339. 1931.

Dept. del Meta: Llano de San Martín Jiramena, alt. 220, Triana 3262; alt. 300 m., Triana 1785; Goudot s.n. (leg. Jan. 1844). Comis. del Vaupes: Caño Grande (selva entre Calamar y San Jose del Guaviare), alt. 240 m., Cuatrecasas 7370. Comis. del Putumayo: selva higrófilo del Río San Miguel, en el afluente izquierda Quebrada de la Hormiga, alt. 290 m., Cuatrecasas 11076. Without locality: Mutis 3; Purdie s.n.; Flor. Claes s.n. (leg. 1923).

Two of the above cited specimens require some comment. Cuatrecasas 11076 was distributed as R. secundiflora even though it has the very short, deltoid corolla lobes of R. splendens. It and Cuatrecasas 7370 both have corollas that are more narrow than those of the other specimens cited above, and may represent a local variant.

Rustia longifolia Standl., see below under excluded species.

Rustia warscewicziana Klotzsch (apparently an unpublished name).

There are two photographs (neg. nos. 10 and 11) in the herbarium of Field Museum, taken by Macbride of material in the Berlin Herbarium, collected by Warscewicz in "cordillera mer. occident., Neu Grenada." Negative No. 10 shows a branchlet with leaves, and No. 11 shows the panicle and one leaf of the same collection as No. 10. It is certainly a Rustia but the panicle seems much larger and more branched than any I have seen otherwise.

Doubtful or excluded species.

Rustia isernii Standl.

~~ALIBERTIA ISERNII~~ (Standl.) D. Simpson, comb. nov. Rustia isernii Standl.  
Publ. Field Mus. Nat. Hist., Bot. Ser. 22(3): 212. 1940.

This is not a Rustia! The two collections cited by Standley are staminate plants with corolla lobes contorted and about equal the length of the tube. Doubtless it belongs in the tribe Gardenieae. The separate stipules exclude it from Amaloua and Duroia, but it can be considered an Alibertia sensu lato. As Steyermark has commented, Alibertia is in need of revision and, given a more strict circumscription of the genus, such revision may result in this and other species being removed.

Rustia longifolia Standl. Fieldiana:Botany 8: 159. 1930. = Tresanthera  
condamineoides Karsten.

Not a Rustia, this can be reduced to synonymy under Tresanthera  
condamineoides Karst. It is based on a collection with immature fruits which when dried exhibit longitudinal ribs. These were not shown in the illustration that accompanied Karsten's description since they do not occur in mature capsules and often are not apparent in flowering material.

Henlea thibaudioides Karst. Linnaea 30: 151. 1859.

This name seems to have been overlooked by Standley. The short description is insufficient to permit any taxonomic decision on its status, but the phrase "capsulis minutis 7 mm. longis" suggests that either it was without mature fruits or that it may be something other than Rustia.

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